Atty's 22910 Pat. App. Not known - US phase of PCT/EP03/00355

CLAIM AMENDMENTS

1. (original) A satellite transmission having an input element and an output element that can provide different transmission ratios by shifting into various concentric or eccentric positions and that include a ring (10) with an annular groove (12) and a star ~~body~~ (13) with radial grooves (14), and satellites (15, 35, 50) which are coupled to the ring (10) and that transmit torque to the star ~~body~~ (13) by means of coupling pins (21, 52), characterized in that
in order to reduce or eliminate irregularities by varying the effective radius in a load zone, each satellite (15, 35, 50) has a radial slot (14, 51) in which can move the respective coupling pin (21, 51) when in the load zone at least relative to a center of the ring (10).

2. (currently amended) The satellite transmission according to claim 1, characterized by a radial groove (20, 51) whose length permits generally no movement of the coupling pin (21, 51) relative to a center of the star ~~body~~ (13).

3. (currently amended) The satellite transmission according to claim 1 ~~or 2~~, characterized in that as a result of the relative geometric relationships and/or the coefficient of friction, the coupling pins in the grooves (14) of the star ~~body~~ move

more easily in the slip zone, that is when moving through the load-free zone, than in the radial grooves (20) so that the sliding movement in the slip zone takes place in the grooves (14) of the star ~~body~~ (13) and in the load zone in the grooves (20) of the satellites (15).

4. (canceled)

5. (currently amended) The satellite transmission according to ~~one of claims~~ claim 3 or 4, characterized in that load flanks of the grooves (14) have greater sliding or rolling friction as a result of surface type and/or shape relative to the contact flanks of the coupling pin (21) or slide bodies carried by the coupling pin than the slip flanks and/or the grooves (20) or that oppositely the load flank has less resistance than the slip flank.

6. (currently amended) The satellite transmission according to ~~one of claims~~ claim 1 ~~to 5~~, characterized in that the coupling pin (21) is spring biased in the slip zone into an end of the groove (20) so that much of the groove (20) is available for radial compensation in the load zone.

7. (canceled)

8. (currently amended) The satellite transmission according to ~~one of claims~~ claim 5 ~~1 to 7~~, characterized in that the slide bodies have a shape or construction such that like locking bodies, rollers, or free-running clutches according to the load direction they slide or lock in the radial grooves so that the load-direction change is initiated on entry into the load zone from the groove (14) to the groove (20) and is reversed on leaving.

9. (currently amended) The satellite transmission according to ~~one of claims~~ claim ~~1 to~~ 8, characterized in that the radial grooves (14) in the star ~~disk~~ (13) have a stop that sets a variable minimum radius for each transmission ratio and thus forces the coupling pin (21) to use the radial groove (20) on the satellite when in the load zone for geometric compensation.

10. (original) The satellite transmission according to claim 9, characterized in that the radial guides are pivotal and that control of movement of the radial guides is effected by a groove (31) that is on a part whose position is fixed relative to the eccentric movement of the transmission control.

11. (currently amended) The satellite transmission according to ~~one of claims~~ claim 1 ~~to 10~~, characterized in that the radial grooves are defined by guide elements (41) that are set up such that they can change the width of the radial groove according

to the load directions of the coupling pins (52) that slide in the radial grooves.

12. (original) The satellite transmission according to claim 11, characterized in that the radial grooves formed by the guide elements (41) can be narrowed so much that the coupling pins or the slide bodies connected with the coupling pins are clamped in the load zone and cannot move further radially.

13. (original) A satellite transmission having an input element and an output element that can provide different transmission ratios by shifting into various concentric or eccentric positions and that include a ring (10) with an annular groove (12) and a star ~~body~~ (13) with radial grooves (14), and satellites (15, 35, 50) which are coupled to the ring (10) and that transmit torque to the star ~~body~~ (13) by means of coupling pins (21, 52), characterized in that the radial grooves (36) of the star ~~disk~~ (33) are not fixed on the disk but instead are formed by separate radial guides (35) that can move relative to the disk (33) to reduce or eliminate irregularities.

14. (currently amended) The satellite transmission according to ~~one of claims~~ claim ~~1 to~~ 13, characterized in that the satellites (15) have teeth (17) that mesh in the load zone with complementary teeth (11) of the hollow ring disk (10), the satel-

lite (15) pivoting when moving between the load zone and the slip zone.

15. (original) The satellite transmission according to claim 14, characterized by satellites (15) shaped such that on transitioning from the slip zone into the load zone the torque is greater than the torque that is the product of the frictional force (R) and the spacing (a) between the first teeth to mesh and the satellite axis.

16. (original) A satellite transmission having an input element and an output element that can provide different transmission ratios by shifting into various concentric or eccentric positions and that include a ring (10) with an annular groove (12) and a star ~~body~~ (13) with radial grooves (14), and satellites (15, 35, 50) which are coupled to the ring (10) and that transmit torque to the star ~~body~~ (13) by means of coupling pins (21, 52), characterized in that
the star ~~body~~ is formed by a support disk (63) with individually secured radial segments (62) that rotate about axes collinear to the drive axis so that they always lie in positions parallel to the support disk (63).

17. (original) The satellite transmission according to claim 16, characterized in that the radial segments (62) are stabilized in their radial positions by springs and/or dampers.

18. (currently amended) The satellite transmission according to ~~one of claims~~ claim 16 ~~and 17~~, characterized in that the coupling pin (19) of the satellite (15) fits snugly in the annular groove of the ring (19) and also fits snugly in the radial groove of the radial segment (62).

19. (currently amended) The satellite transmission according to ~~one of claims~~ claim 16 ~~to 18~~, characterized in that the pivot axes of the radial segments (62) lie on an edge line on the support disk (63) on which the satellites (15) ride when the ring (10) and the star ~~body~~ (62, 63) are concentric.

20. (currently amended) The satellite transmission according to ~~one of claims~~ claim 16 ~~to 19~~, characterized in that the radial segments (62) are set in a guide of the coupling pin (19) that, when the ring (10) and the star ~~body~~ (62, 63) are eccentric, they are oriented at least generally in line with the center of the ring (10).

21. (new) A variable-speed transmission comprising:

a ring centered on and rotatable about a ring axis and formed with a circular track and with a radially inwardly directed circular coupling surface both centered on the ring axis;

a star centered on and rotatable about a star axis substantially parallel to the ring axis and formed with a plurality of radial tracks extending substantially radially of the star axis, the ring and star being relative displaceable perpendicular to their axes between an eccentric position with the axes offset from each other and a coaxial position with the axes coaxial;

a plurality of satellites angularly spaced about and riding in the ring track and each having an outer end bearing on the coupling surface, whereby the satellites are each maintained at a substantially fixed radial spacing from the ring axis by the ring track and at a substantially fixed angular spacing from one another by the radial tracks, each of the satellites further being formed with a respective radially extending guide; and

respective coupling elements each riding in a respective one of the radial tracks and a respective one of the guides and thereby angularly coupling the satellites angularly with the star, whereby each relative rotation about one of the axes of the ring and star in the eccentric position orbits the satellites through a load zone in which their outer ends are coupled to the coupling surface and transmit torque between the ring and star and a slip

zone in which their outer ends move along the coupling surface and transmit no torque.

22. (new) The variable-speed transmission defined in claim 21 wherein the outer end of each satellite and the coupling surface of the ring are formed with generally complementary inter-engaging teeth.

23. (new) The variable-speed transmission defined in claim 21 wherein the tracks are grooves.

24. (new) The variable-speed transmission defined in claim 21, further comprising

means between the coupling elements and the tracks for inhibiting but not preventing sliding of the coupling elements on the respective radial tracks while substantially not inhibiting sliding of the coupling elements on the circular track.

25. (new) The variable-speed transmission defined in claim 21 wherein the tracks are grooves and coupling elements each have a large-diameter end in the respective radial groove track and a small-diameter end in the circular track.

26. (new) The variable-speed transmission defined in claim 21 wherein the radial tracks and portions of the coupling elements that engage the radial tracks have a greater coefficient of friction than the circular track and portions of the coupling elements that engage the circular track.